

## 5 We Claim:

1. A method for identifying nucleic acid ligands and nucleic acid ligand sequences to a lectin comprising:
  - a) contacting a candidate mixture of nucleic acids with a lectin, wherein nucleic acids having an increased affinity to said lectin relative to the candidate mixture may be partitioned from the remainder of the candidate mixture;
  - 10 b) partitioning the increased affinity nucleic acids from the remainder of the candidate mixture; and
  - c) amplifying the increased affinity nucleic acids to yield a mixture of nucleic acids enriched for nucleic acid sequences with relatively higher affinity and specificity for binding to said lectin, whereby nucleic acid ligands to said lectin may be identified.
2. The method of Claim 1 further comprising:
  - d) repeating steps a), b) and c).
- 20 3. The method of Claim 1 wherein said candidate mixture is comprised of single-stranded nucleic acids.
4. The method of Claim 3 wherein said single-stranded nucleic acids are ribonucleic acids.
- 25 5. The method of Claim 4 wherein said nucleic acids comprise modified ribonucleic acids.
- 30 6. The method of Claim 5 wherein said nucleic acids comprise modified ribonucleic acids selected from the group consisting of 2'-amino (2'-NH<sub>2</sub>) modified ribonucleic acids and 2'-fluoro (2'-F) modified ribonucleic acids.
7. The method of Claim 3 wherein said single-stranded nucleic acids are deoxyribonucleic acids.
- 35 8. The method of Claim 2 further comprising
  - e) forming a multivalent Complex comprising two nucleic acid ligands identified in step c).

5           9.     The method of Claim 5 further comprising  
              e) substituting 2'-O-methyl ribonucleic acids for 2'-OH ribonucleic  
              acids in the nucleic acid ligands identified in step c).

              10.    The method of Claim 1 wherein said lectin is selected from the group  
10   consisting of a mammalian lectin, a plant lectin, a microbial lectin and a viral lectin.

              11.    The method of Claim 1 wherein said lectin is wheat germ agglutinin.

              12.    The method of Claim 1 wherein said lectin is a selectin.  
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              13.    The method of Claim 12 wherein said selectin is selected from the  
              group consisting of L-selectin, E-selectin, and P-selectin.

              14.    The method of Claim 1 wherein said lectin is serum mannanose binding  
20   protein.

              15.    A purified and isolated non-naturally occurring nucleic acid ligand to  
              a lectin.

25           16.    The nucleic acid ligand of Claim 15 which is a non-naturally  
              occurring nucleic acid ligand having a specific binding affinity for said lectin, such  
              lectin being a three dimensional chemical structure other than a polynucleotide that  
              binds to said nucleic acid ligand through a mechanism which predominantly depends  
              on Watson/Crick base pairing or triple helix binding, wherein said nucleic acid  
30   ligand is not a nucleic acid having the known physiological function of being bound  
              by said lectin.

              17.    The nucleic acid ligand of Claim 15 wherein said lectin is selected  
              from the group consisting of a mammalian lectin, a plant lectin, a microbial lectin  
35   and a viral lectin.

              18.    The nucleic acid ligand of Claim 15 wherein said lectin is selected  
              from the group consisting of wheat germ agglutinin, L-selectin, E-selectin and P-  
              selectin.  
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5           19.    The nucleic acid ligand of Claim 15 wherein said lectin is wheat germ agglutinin.

            20.    The nucleic acid ligand to wheat germ agglutinin of Claim 19 wherein said nucleic acid ligand is a ribonucleic acid (RNA) ligand.

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            21.    The nucleic acid ligand of Claim 20 which comprises a modified ribonucleic acid.

            22.    The nucleic acid ligand of Claim 21 wherein said modified  
15 ribonucleic acid is a 2'-amino ( $\text{NH}_2$ ) modified ribonucleic acid.

            23.    The nucleic acid ligand to wheat germ agglutinin of Claim 22 wherein said ligand is an RNA ligand selected from the group consisting of the nucleotide sequences set forth in Table 2.

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            24.    The nucleic acid ligand of Claim 23 wherein said ligand is selected from the group consisting of SEQ ID NOS: 4-55.

            25.    The nucleic acid ligand of Claim 20 wherein said ligand comprises  
25 sequences selected from the group consisting of SEQ ID NOS: 56-63.

            26.    The nucleic acid ligand to wheat germ agglutinin of Claim 19 wherein said ligand is substantially homologous to and has substantially the same ability to bind said wheat germ agglutinin as a ligand selected from the group consisting of the  
30 sequences set forth in Table 2.

            27.    The nucleic acid ligand to wheat germ agglutinin of Claim 19 wherein said ligand has substantially the same structure and the same ability to bind said wheat germ agglutinin as a ligand selected from the group consisting of the  
35 sequences set forth in Table 2.

            28.    The nucleic acid ligand of Claim 15 wherein said lectin is a selectin.

            29.    The nucleic acid ligand of Claim 28 wherein said selectin is selected  
40 from the group consisting of L-selectin, E-selectin and P-selectin.

5           30.    The nucleic acid ligand of Claim 29 wherein said selectin is L-selectin.

          31.    The nucleic acid ligand to L-selectin of Claim 30 wherein said nucleic acid ligand is ribonucleic acid (RNA) ligand.

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          32.    The nucleic acid ligand of Claim 31 which comprises a modified ribonucleic acid.

          33.    The nucleic acid ligand of Claim 32 wherein said modified  
15 ribonucleic acid is selected from the group consisting of a 2'-amino (2'-NH<sub>2</sub>) modified ribonucleic acid and a 2'-fluoro (2'-F) modified ribonucleic acid.

          34.    The nucleic acid ligand to L-selectin of Claim 33 wherein said ligand  
20 is an RNA ligand selected from the group consisting of the nucleotide sequences set forth in Tables 8 and 16.

          35.    The nucleic acid ligand of Claim 34 wherein said ligand is selected from the group consisting of SEQ ID NOS: 67-117 and 293-388.

25           36.    The nucleic acid ligand of Claim 31 wherein said ligand comprises sequences selected from the group consisting of SEQ ID NOS: 118-125.

          37.    The nucleic acid ligand to L-selectin of Claim 30 wherein said ligand  
30 is substantially homologous to and has substantially the same ability to bind said L-selectin as a ligand selected from the group consisting of the sequences set forth in Tables 8, 12 and 16.

          38.    The nucleic acid ligand to L-selectin of Claim 30 wherein said ligand  
35 has substantially the same structure and the same ability to bind said L-selectin as a ligand selected from the group consisting of the sequences set forth in Tables 8, 12 and 16.

          39.    The nucleic acid ligand to L-selectin of Claim 30 wherein said nucleic acid ligand is deoxyribonucleic acid (DNA).

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5           40.    The nucleic acid ligand to L-selectin of Claim 39 wherein said ligand is an DNA ligand selected from the group consisting of the nucleotide sequences set forth in Table 12.

            41.    The nucleic acid ligand of Claim 40 wherein said ligand is selected  
10   from the group consisting of SEQ ID NOS: 129-180 and 185-196.

            42.    The nucleic acid ligand of Claim 39 wherein said ligand comprises sequences selected from the group consisting of SEQ ID NOS: 181-184.

15           43.    The nucleic acid ligand of Claim 29 wherein said selectin is P-selectin.

            44.    The nucleic acid ligand to P-selectin of Claim 43 wherein said nucleic acid ligand is ribonucleic acid (RNA) ligand.

20           45.    The nucleic acid ligand of Claim 44 which comprises a modified ribonucleic acid.

            46.    The nucleic acid ligand of Claim 45 wherein said modified  
25   ribonucleic acid is selected from the group consisting of a 2'-amino (2'-NH<sub>2</sub>) modified ribonucleic acid, a 2'-fluoro (2'-F) modified ribonucleic acid, and a 2'-O-Methyl (2'-O-Me) modified ribonucleic acid.

            47.    The nucleic acid ligand to P-selectin of Claim 46 wherein said ligand  
30   is an RNA ligand selected from the group consisting of the nucleotide sequences set forth in Tables 19, 21 and 25.

            48.    The nucleic acid ligand of Claim 47 wherein said ligand is selected from the group consisting of SEQ ID NOS: 199-219 and 236-290.

35           49.    The nucleic acid ligand of Claim 44 wherein said ligand comprises sequences selected from the group consisting of SEQ ID NO: 291.

            50.    The nucleic acid ligand to P-selectin of Claim 43 wherein said ligand  
40   is substantially homologous to and has substantially the same ability to bind said P-

5 selectin as a ligand selected from the group consisting of the sequences set forth in  
Tables 19, 21 and 25.

51. The nucleic acid ligand to P-selectin of Claim 43 wherein said ligand  
has substantially the same structure and the same ability to bind said P-selectin as a  
10 ligand selected from the group consisting of the sequences set forth in Tables 19, 21  
and 25.

52. The nucleic acid ligand to P-selectin of Claim 46 wherein said nucleic  
acid ligand is deoxyribonucleic acid (DNA).

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53. The nucleic acid ligand of Claim 15 wherein said ligand is a  
ribonucleic acid ligand.

54. The nucleic acid ligand of Claim 53 which comprises a modified  
20 ribonucleic acid.

55. The nucleic acid ligand of Claim 54 wherein said modified  
ribonucleic acid is selected from the group consisting of 2'-amino (2'-NH<sub>2</sub>)  
modified ribonucleic acids, 2'-fluoro (2'-F) modified ribonucleic acids and 2'-O-  
25 Methyl (2'-O-Me) modified ribonucleic acids.

56. The nucleic acid ligand of Claim 15 wherein said ligand is a  
deoxyribonucleic acid.

30 57. The nucleic acid ligand of Claim 15 wherein said ligand has been  
further chemically modified at the sugar and/or phosphate and/or base.

58. A multivalent Complex comprising a plurality of ligands of Claim 15.

35 59. A nucleic acid ligand to a lectin identified according to the method  
comprising:

- a) contacting a candidate mixture of nucleic acids with a lectin,  
wherein nucleic acids having an increased affinity to said lectin relative to the  
candidate mixture may be partitioned from the remainder of the candidate mixture;
- 40 b) partitioning the increased affinity nucleic acids from the  
remainder of the candidate mixture; and

- 5                   c)       amplifying the increased affinity nucleic acids to yield a mixture of nucleic acids enriched for nucleic acid sequences with relatively higher affinity and specificity for binding to said lectin, whereby nucleic acid ligands of said lectin may be identified.
- 10           60.     A method for treating a lectin-mediated disease comprising administering a pharmaceutically effective amount of a nucleic acid ligand to a lectin.
61.     The method of Claim 60 wherein said nucleic acid ligand to a lectin is identified according to the method of Claim 1.
- 15           62.     The method of Claim 60 wherein said lectin is a selectin.
63.     The method of Claim 62 wherein said selectin is L-selectin.
- 20           64.     The method of Claim 62 wherein said selectin is P-selectin.